



03-01-07  
**SMITH HOPEN**  
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February 28, 2007

Mail Stop Appeal Brief – Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Applicant: Marshall R. Moore**  
**Serial No.: 09/682,168**  
**Filing Date: 07/31/2001**  
**For: Foam Insulated Fuel Tank**  
**Our Reference: 1287.02**

**Examiner: Stephen J. Castellano**  
**Art Unit: 3727**  
**Confirmation No.: 9029**

Dear Sir:

Enclosed please find the following:

1. Brief of Appellant, in triplicate, having a Certificate of Mailing dated February 28, 2007;
2. Check No. 5595 in the amount of \$500.00, payable to Commissioner for Patents; and
3. Self-addressed, postage prepaid post card to serve as a receipt for items 1 and 2.

Very respectfully,

**SMITH & HOPEN**

By: Ronald E. Smith  
ron.smith@smithhopen.com

RES/dp  
Enclosures

**CERTIFICATE OF MAILING**  
**(37 C.F.R. 1.10)**

I HEREBY CERTIFY that this Brief of Appellant, in triplicate, and fee, is being deposited with the United States Postal Service in an envelope as "Express Mail Post Office to Addressee," mailing Label No. EV896393878US, addressed to: Mail Stop Appeal Brief – Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on February 28, 2007.

Date: February 28, 2007

  
Deborah Preza



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BOARD OF PATENT APPEALS AND INTERFERENCES

Appellant: Marshall R. Moore	)	
	)	
Serial No.: 09/682,168	)	Examiner: Stephen J. Castellano
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BRIEF OF APPELLANT

1. Real Party In Interest.

Appellant is the real party in interest.

2. Related appeals and interferences.

There are no related appeals or interferences directly affecting or that will be directly affected or that would have a bearing on the Board's decision in this appeal.

3. Status of claims.

Claims 1-16 were initially filed. Claims 2-5 and 14-16 were cancelled during the course of prosecution. Claims 1 and 6-13 are pending and said claims are appealed.

4. Status of amendments.

Amendment E filed 11 July 2006 stands entered.

5. Summary of invention.

Citations to the specification are by bracketed paragraph numbers.

The significant structural elements of this invention are inner primary wall 20, outer secondary wall 30 [0030], both of which are made of carbon steel and welded together [0034]. Significantly, inner primary wall 20 is surrounded by outer secondary wall and an interstitial space 25 is provided between said walls [0032].

There are two materials that fill said interstitial space [0032]. Insulating material 40 is a foam material including synthetic polymer such as polystyrene, urethanes, or polymethyl

methacrylate [0032]. Fire resistant textile material 50 is sandwiched between the foam material and the outer secondary tank to provide additional fire protection from leakage or penetration of secondary tank 30 [0032]. Fire resistant textile material 50 is a high-temperature polyester film material such as Mylar or Kevlar [0032].

6. Issues.

Whether the Office erred in rejecting claims 1 and 6-13 under 35 U.S.C § 103(a) as being unpatentable over Hall in view of McGarvey and Keehan.

7. Grouping of claims.

The claims on appeal stand or fall together. Claim 1 is the only independent claim.

8. Argument.

Claims 1-3 and 6-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hall in view of McGarvey and Keehan.

Appellant's structure, reduced to its simplest form, is: 1) an inner tank formed of carbon steel; 2) said inner tank covered by a layer of insulating material; 3) said insulating material covered by a layer of fire-resistant textile material; and 4) said layer of fire-resistant textile material overlying said layer of insulating material and underlying an outer tank formed of carbon steel.

If an explosion occurs inside the inner tank, there are four lines of defense that inhibit the force of the explosion from escaping into the ambient environment of the tank. The first line of defense is the carbon steel walls that form inner tank 20. The second line of defense is insulating material 40, the third line of defense is fire-resistant textile material 50, and the fourth and final line of defense is the carbon steel walls that form outer tank 30.

Appellant is the first to invent a structure having the recited number of lines of defense, made of the recited materials, and arranged in the recited order.

The prior art cited by the Office does not suggest Appellant's structure.

The Hall structure, from the inside to the outside, includes:

1) inner tank 12 made of steel;

2) "liquid-absorbing layer 70, formed preferably of a polypropylene cellular sheet material which is commercially available and which absorbs any liquid which might leak out of tank 12" (col. 7, lines 49-52);

3) “a sealed polyurethane container, or bag 74...which is impervious to most flammable liquids” (col. 8, lines 1-4), “The polyurethane bag 74 thus provides a secondary containment for any fluids that might leak out of tank 12.” (col. 8, lines 11-13);

4) “a cellular concrete commercially available under the name Elastizell, or other lightweight insulating material is poured in fluid form into the space between the inner tank assembly and the outer shell 20” (col. 8, lines 40-44); and

5) outer shell 20 formed of 10 gauge steel (col. 4, line 34).

Hall’s structure includes five (5) parts, not the four (4) parts recited by the Office. The Hall structure is best understood as a first steel container disposed inside a second steel container with a relatively lightweight concrete poured into the space between said containers. This makes three (3) parts, it being understood that the other two (2) parts are leak-proof bags that encase the inner container. Obviously, the leak-proof bags perform no function during an explosion or a fire; they merely prevent leakage during normal above-ground storage of flammable fuels.

Just as obviously, Hall’s “lightweight concrete” is a far cry from any material disclosed by Appellant.

As Hall recites in col. 3, lines 43-57:

The use of a lightweight insulating material greatly reduces the expense of transporting the tank vault of the invention, making it economical to completely assemble the device at the manufacturing location. The lightweight encasing material reduces the need for reinforcement of the inner tank or outer shell, thereby further reducing the overall weight of the device. Further, the provision of an outer shell, for example of steel, insures structural integrity of the vault not only during transportation, but during exposure to adverse environmental conditions. The integrity of the insulating material is maintained over a longer period of time and exposure to fire conditions does not cause destruction of the insulating layer when attempts are made to put out the fire. In addition, the outer shell provides another barrier to leakage of hazardous materials.

Thus it is understood that Hall’s contribution to the art resides primarily in the use of a relatively lightweight concrete material between two steel containers. Therefore, any modification of Hall that removes such relatively lightweight concrete (or other lightweight insulator material) from the Hall construction would not have been obvious to those of ordinary

skill in this art. In fairness to Appellant, it cannot have been obvious to modify Hall by deleting the central teaching of Hall.

The Office's assertion that "Hall discloses the invention except for the insulating foam material." is unsupportable. Appellant's invention includes no concrete whatsoever, whether heavy-in-weight or light-in-weight as taught by Hall. Appellant's invention rejects the teaching of Hall and incorporates no concrete of any kind. In fairness to Appellant, no concrete-reliant structure as taught by Hall would have suggested Appellant's devoid-of-concrete structure.

Nor does Hall disclose an insulating foam material.

Therefore, the Office contends that it would have been obvious to add the insulating foam material of McGarvey to the Hall structure and to thereby arrive at an invention having Appellant's structure. Of course, even if McGarvey's insulating foam material is added to Hall, under the influence of Appellant's disclosure, the concrete remains in Hall. Thus, a Hall/McGarvey aggregation, using Appellant's invention as a guidebook, as if Appellant's invention preceded itself, still fails to replicate, teach, or suggest Appellant's claimed structure.

Hall teaches away from the invention. An aggregation of earlier patents that includes Hall would lead one of ordinary skill away from the claimed invention, not toward it.

McGarvey discloses an inner tank 11 made of steel and an outer tank 12 made of steel. However, the space between the inner and outer tanks is filled with "thermal barrier material 117" which includes "foamed concrete, VERMICULITE, styrofoam, urethane foam, pumice, FENDOLITE, and the like" (col. 3, lines 55-57). FENDOLITE is identified as including a mixture of VERMICULITE and portland cement (col. 3, lines 60-62). A fire-resistant material 250a is sprayed on the exterior of outer tank 12. Thus, in identifying the materials of which the McGarvey structure is formed, beginning from the inside and working outwardly, we have: 1) steel inner container 11; 2) thermal barrier material 117 in the form of foamed concrete or other foams; 3) steel outer container 12; and 4) a layer 250a of a fire-resistant material. This is in sharp contrast to Appellant's: 1) inner enclosure formed of a metal; 2) an insulating foam; 3) a fire-resistant textile material; and 4) and an outer enclosure formed of a metal. Only Appellant teaches a foam and a fire-resistant material sandwiched between two steel tanks.

McGarvey clearly teaches away from Appellant's contribution. An outward-bound particle impelled by an explosion in Appellant's container will encounter, in sequence, a first

steel wall, a foam, a fire-retardant, and a second steel wall. An outward-bound particle impelled by an explosion in McGarvey's container will encounter, in sequence, a first steel wall, a cementitious foam, a second steel wall, and a fire-retardant. The two (2) structures behave in entirely different ways when an explosion occurs. In Appellant's structure, the explosive force is diminished by the inner steel wall, the insulating foam, and the fire-resistant textile material before the outer steel wall is encountered. If all four (4) lines of defense fail, the explosion enters into the ambient environment. In the McGarvey structure, the explosive force is diminished only by the inner steel wall and a cementitious foam before it reaches the outer steel wall. If the outer steel wall is breached, the layer of fire-retardant material that overlies said outer steel wall cannot prevent the explosive force from entering into the ambient environment. McGarvey, for all practical purposes, has but three (3) lines of defense.

Nor would Keehan have impelled one of ordinary skill to delete the concrete from the Hall structure, especially under the influence of McGarvey's cementitious foam. Keehan discloses an inner foam layer 92 and an outer fire resistant layer 94, both of which are disposed in an interstitial space defined by inner layer 88 and outer layer 98, as the Office points out. Still, nothing in Keehan suggests that the Hall concrete or the McGarvey cementitious foam should be discarded so that a structure more like Appellant's could be produced.

If McGarvey is considered as the only reference, instead as one of three references in combination with one another, it would represent a stronger, yet still not persuasive, argument for obviousness. Appellant's structure can be simplified to 1-2-3-1 (steel, foam, fire-retardant, steel) and McGarvey's structure can be simplified to 1-2a-1-3 (steel, cementitious foam, steel, fire-retardant). It nonetheless requires Appellant's structure to rearrange McGarvey's structure and when the additional two references are added to the mix, Appellant's structure becomes even less obvious.

When it is considered that there are many more real world references still that could be added, Appellant's invention becomes less and less obvious. Appellant was of course presented with all of said real world references at the time the invention was made, not just the three references selected by the Office in light of Appellant's disclosure.

Long-settled law supports Appellant's position. The Office cannot pick and choose among the individual elements of assorted prior art references to recreate the claimed invention. *SmithKline Diagnostics, Inc. v. Helena Laboratories Corp.*, 8 U.S.P.Q. 1468 (Fed. Cir. 1988)

Although the Commissioner suggests that Hoffman could readily be modified to form the Laskowski structure, [t]he mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification. *In re Gordon*, 733 F.2d 900, 902, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984).

References, which inherently teach away from Appellant's claimed structure, cannot, in fairness to Appellant, be cited as inherently converging toward Appellant's invention.

There must be some logical reason apparent from positive, concrete evidence of record which justifies a combination of primary and secondary references. *In re Stemniski*, 444 F.2d 581, 170 U.S.P.Q. 343 (C.C.P.A. 1971).

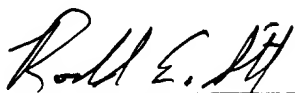
Not only is there nothing inherent in either McGarvey or Keehan that would have suggested the combination of such references with Hall, but even if such an aggregation is made, the claimed structure still would not have been obvious to one of ordinary skill in the art at the time the claimed invention was made.



Accordingly, reversal of the final rejection is solicited. No fair interpretation of the prior art supports the Office's position.

Very respectfully,

SMITH & HOPEN

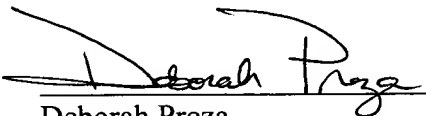
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CERTIFICATE OF MAILING  
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Dated: February 28, 2007

  
Deborah Preza



## 9. Appendix.

1. (previously presented) An aboveground storage tank for flammable and combustible liquids having secondary containment capability, comprising:

an inner primary tank formed of steel for storing the liquid;

an outer secondary tank formed of steel encasing said inner primary tank defining an interstitial space therebetween;

an insulating foam material disposed in the interstitial space; and

a fire resistant polymer material sandwiched between the insulating foam material and the outer secondary tank so that a fire resistant composite including said insulating foam material and said fire resistant polymer material encases the inner primary tank.

2 - 5. (cancelled)

6. (original) The storage tank of claim 1 wherein the insulating foam material is polystyrene.

7. (original) The storage tank of claim 1 wherein the insulating foam material is a urethane polymer.

8. (previously presented) The storage tank of claim 1 wherein the insulating foam material is polymethyl.

9. (previously presented) The storage tank of claim 1 wherein the insulating foam material is a synthetic polymer.

10. (previously presented) The storage tank of claim 1 wherein the insulating foam material is rubber.

11. (original) The storage tank of claim 1 further comprising an interstitial leak sensor for monitoring leakage of the inner primary tank.

12. (original) The storage tank of claim 1 further comprising a first venting means for venting the inner primary tank.

13. (original) The storage tank of claim 1 further comprising a second venting means for venting the interstitial space containing the fire resistant composite.

14 - 16. (cancelled)